

Title (en)  
GRAIN REFINEMENT, ALUMINIUM FOUNDRY ALLOYS

Title (de)  
KORNFEINUNG, ALUMINIUMGUSSLEGIERUNGEN

Title (fr)  
AFFINAGE DE GRAIN ET ALLIAGES DE FONDERIE D'ALUMINIUM

Publication  
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Application  
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Abstract (en)  
[origin: WO2013072898A2] The present invention describes an effective grain refining practice for aluminium foundry alloys. The method described herein relies on the control of the Titanium level of the alloy to be grain refined and the addition of boron once it is melted. Boron addition can be made via Al-B master alloys as well as with boron compounds such as KBF<sub>4</sub> salt. The boron added into the melt dissolves first and then forms the AlB<sub>2</sub> particles that act as potent substrates for the nucleation of aluminium once solidification process starts. The Ti concentration of the alloy must be controlled below 100 ppm for this method to offer effective grain refinement. The boron becomes ineffective when the Ti concentration in the alloy is higher.

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